

A Work Project, presented as part of the requirements for the Award of a Masters Degree in Management from the NOVA – School of Business and Economics.

NOKIA SMART MOBILE ADVERTISING:
FROM THE LOW-HANGING FRUIT TO THE TRUFFLE HUNT

MARIANA DA SILVA MOTA | 1971

A Project carried out as a Business Project on the CEMS MIM Masters in International Management program, under the supervision of Dr. Juho-Petteri Huhtala (Aalto University)

Helsinki, May 23th 2016.

ABSTRACT

This Work Project is a part of the 2016 Business Project course of the CEMS Master in International Management program, done at Aalto School of Business in Helsinki, Finland. It was developed in cooperation with Nokia Networks, having two major goals: (1) the examination of the current *state-of-art* of mobile advertising within operators in a global level, as well (2) providing recommendations for Nokia on its sales strategy during the expansion to different mobile advertising markets. Additionally, this Work Project also discusses academic insights regarding the importance of managing business ecosystems and the crucial value given by dynamics of co-creation.

Key words: *mobile advertisement; business ecosystems; co-creation; Nokia Networks.*

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Introduction

This Work Project is the individual product of an extensive research developed for Nokia during the spring of 2016. In this project, Nokia's new mobile advertisement solution, Layer 8, will be presented, as well the findings and recommendations achieved by mapping operators expectations towards this business in many relevant markets.

First, a brief contextualization will be presented, followed by a client and market overview. Additionally, the challenged proposed by the company as Business Project will be commented. In the next chapter, the methodology used to conduct the work, the recommendations provided to the company and my individual contribution will be discussed. In chapter 3, a literature review and an academic discussion will be presented, focusing on the concepts of "business ecosystems" and "value co-creation". Finally, to conclude this work, a brief personal reflection will be provided.

1. Brief context

In this section a brief context will be discussed. First, Nokia as a company will be presented, followed by a brief market overview of the mobile advertising industry worldwide. Based on that, Nokia's solution and its current situation will be commented, as well the challenge proposed by the company as a Business Project.

1.2 Client & Market Overview

Nokia is a multinational company, a global leader in technologies and a solution provider in many segments. Nokia is very likely the most well-known Finnish company, working with high tech communications, operating a great network of products and services tailored for

the markets on which the company operates. Additionally, Nokia also conducts intensively software research and develop facilities and innovations worldwide.

Currently, Nokia primary focus on networks business, enabling new types of information flows, converging mobile and fixed broadband access, IP routing and optical networks. Software and services licenses are also a great asset of the company, optimizing third parties networks globally. Operators, enterprises and governments are the most important Nokia's clients. Nokia offers solutions in four different areas: (1) Mobile Networks, (2) Fixed Networks, (3) IP/Optical Networks and (4) Applications & Analytics. In this particular project, the Mobile Networks branch was responsible for presenting the challenge.

Mobile Networks is a segment embedded in Nokia's portfolio of products that delivers end-to-end mobile broadband services and softwares that help customers to enlarge their capacity of connectivity. Being scaling efficiency, delivering high quality mobile broadband experience or offering innovative solutions, Nokia's Mobile Networks services are intended to meet an ever-increasing worldwide demand for content. On this Business Project challenge, Nokia's new solution Layer 8 - a new solution for mobile advertising, was the service that motivated this research.

While Google and Facebook have taken over 50% of the mobile advertising markets (eMarketer 2015), other actors have been searching solutions to create new advertising inventory to tap into the markets and to generate their own share of this ever-growing revenue. However, this requires the creation of whole new inventory, an advertisement tool or space that is not owned by any other service provider. In other words, Nokia and other IT competitors have been creating alternatives for traditional in-browser or in-application advertising.

Regarding the market, ad spending currently represents only 13.7 % of the total media ad spending in 2015, but is expected to present 26.8 % of the total market in 2018. As total media ad spending market is expected to be 607.7 Billion USD then, the mobile ad spending market is expected to amount to 162.61 Billion USD, over doubling from the size of the market in 2015 (eMarketer, 2015). See Figure 1:

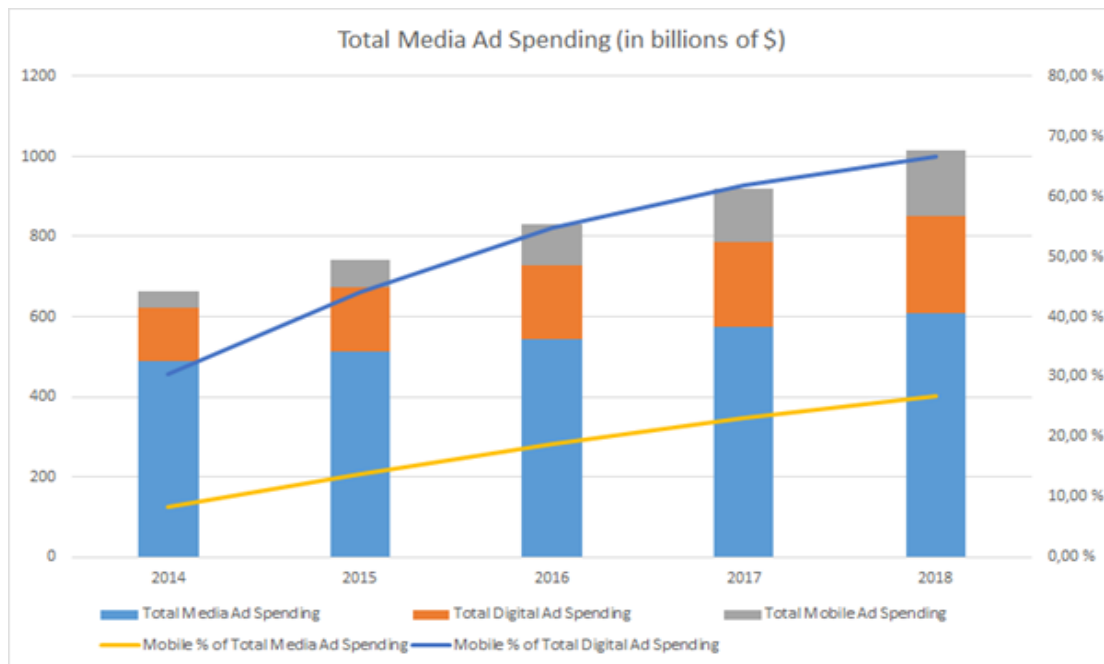


Figure 1-1. Total media ad spending (eMarketer 2015)

1.3 Current client situation

In the end of 2014, Nokia Networks signed a partnership agreement with the Israeli technology provider “Flash Networks”. The partnership brought Flash Networks' solution Layer 8 to Nokia's portfolio of products, enlarging its offer to meet operators increasing demand for mobile advertisement alternatives. The service was intended to deliver to

operators a solution to optimize video and web traffic, creating for them a new mobile advertising inventory.

This technology comes from an urgent need of operators to tackle the mobile advertising market. Currently, although operators provide the network that enable other players (such as Facebook or Google) to monetize mobile advertising, they do not have their own inventory. That said, operators worldwide are increasingly looking for their piece of revenue in this market, but the available solutions still do not fit operator's expectations. That is, precisely the reason why Nokia proposed the challenge – the company wanted to access operators needs and expectations around the world to, in the future, tailor its offers accordingly.

1.3.1 Nokia's Solution: Layer 8

Currently, Layers 8 is a product that offers new solutions for creating new inventory for operators. Designed for teleoperators, Layer 8 aims to give operators a fair share in the mobile advertisement market taking advantage of their network provision. Layer 8 is supported in almost all platforms, such as smartphones (currently available on Android and IOS), tablets and laptops. It is automatically installed on a device, but a customer has the right to opt-out already at the first encounter if the service is not desired – or at any point in time.

Layer 8 was designed by Flash Networks and Nokia to deliver two major tools: engagement and monetization. The engagement tools are more traditional, auto-opened push-up notifications. These can be used to inform the customer of a reached data limit, new promotions or an arrived e-bill. In other words, this tools is particularly useful for cross- and upselling of the operators' products and services. In addition to this, monetization tools represent the new inventory that Layer 8 offers for operators. An automatic curl, that appears

on the bottom corner of the screen, works as a non-intrusive method to offer high relevancy advertisement for the final user. As operators would own this inventory, the sold advertisement space will bring direct revenue for them, as the operators will be the one providing advertisement space. The measurements used could be e.g. Cost per Mille (CPM), Click through rate (CTR), Cost per click (CPC), Cost per action (CPA) and Cost per installation (CPI). In the following image, it is possible to see an example of Layer 8 monetization tool in action:

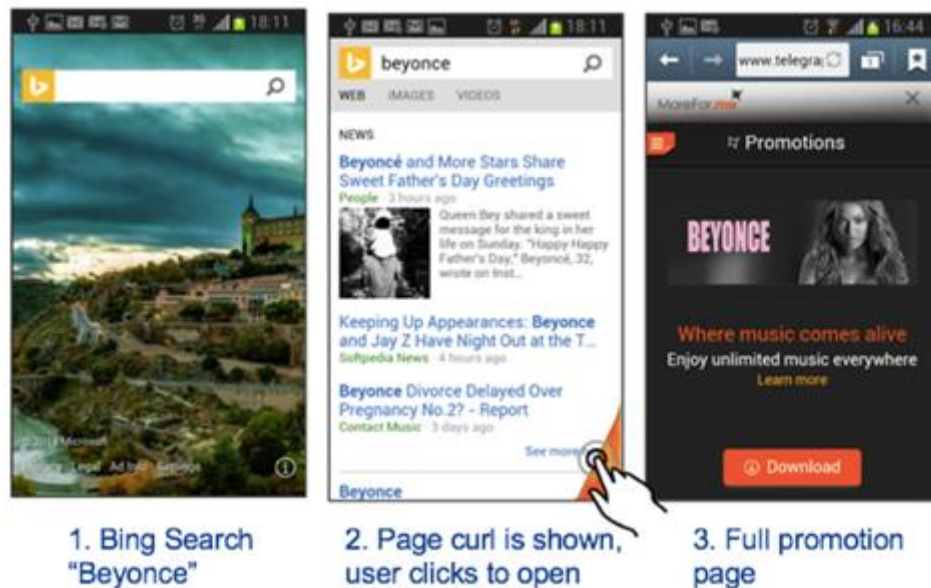


Figure 1-2. Illustration of the curl featured in Layer 8 (Nokia 2016)

1.4 Business Project Challenge

This Business Project was proposed by Nokia with the intention to understand, explore the possibilities, expectations, issues and trends regarding mobile advertisement worldwide.

Although Layer 8 was the solution that motivated the challenge, it was not the main focus on the research – as Nokia specifically asked to not even mention the product if the not necessary. Therefore, the challenge was focused on clearly defining operators know-how regarding mobile advertising, their resources allocated for this market and also expectations about the future.

2. Reflection on the work done and individual contribution

2.1 Problem definition

Nokia is a new player in the mobile advertisement market and the company is still doing its first steps in a deeply uncharted territory. With just one year of expertise and with not as much success as forecasted, top management still unsure about how to properly tackle the market. In addition to this, Nokia does not have the know-how in house regarding advertisement trends, although it already has a very polished technology solution.

That said, the major issue concerning Nokia was accessing and analyzing information and expectations of operators worldwide. Being carriers the only type of client of this specific product (Layer 8), it is mandatory for Nokia to understand clearly how these players act in this market. The impact of this problem is very clear for Nokia. First, without knowing how operators understand mobile advertising, Nokia cannot properly sell its products or serve their needs. Secondly, by understanding and scoping operators' needs, Nokia can tailor its offer and sell better solutions based on their goals regarding mobile advertisement in the future.

2.2 Methodology

The study was conducted using qualitative methods. In order to draw a comprehensive picture of the present state of mobile advertising, five semi-structured interviews were conducted with various carriers (See **Appendix 1**. Operator interview structure). The represented countries were Russia, China, Brazil and the USA. These market areas were chosen based the client's interest and also on their potential from the business point of view. Additionally, the nationalities represented in the research team created advantage in approaching operators in certain areas. The objective was to reach either the Head of the Marketing department or Mobile Advertising of the most important operator in each region. In this way, the most recent and accurate information of the current situation of mobile advertising as well as the future vision and the possible interest towards the product could be captured. The interviewees were contacted by phone and the interviews lasted approximately for one or two hours (depending on the country) and it was conducted using qualitative methods. The list of all operators interviewed are listed bellow:

Country	Teleoperator	Interviewee(s)
Russia	Stream	Director of Mobile Advertising
	Tele 2	Nokia Account Manager
China	Unicom	Head of Marketing Department (Tianjin)
Brazil	Telefônica Brasil	Director of Mobile Advertising (Vivo)
The USA	Verizon	Former Director in Mobile Marketing & Advertising

Figure 1-3. Summary of the conducted interviews with operators

In addition to the this, Nokia employees in Finland and Flash Networks employee in Israel were interviewed to gain a comprehensive understanding of the product itself and to form an image of the whole ecosystem from its both sides - the sellers' and customers' point of view. When building the recommendations for Nokia, matching the expectations of each party was crucial. Before conducting the interviews, secondary data and academic literature related primarily to service-dominant logic, business networks and the value creation in business ecosystems were taking into account. The literature provided guidance and support while forming the questionnaire, as well as when structuring the final suggestions for Nokia by providing theoretical grounds on these topics.

2.2.1 Researched Questions

Since the major purpose of this research was to give insights for Nokia on how to create a strong and reliable ecosystem in different regions, understanding what kind of product offering would serve the teleoperators' needs and expectations was mandatory. Therefore, to be able to provide useful recommendations, the current state of the markets needed to be evaluated. Two major questions were developed, since this project was based solely on qualitative research. On this section both of them will be discussed briefly, starting with Q1:

Q1: What is the teleoperators' current state of art in the field of mobile advertising?

Understanding the state of arts itself consist various subcategories, that had to be treated separately. The first is the maturity of these companies in mobile advertising. In concrete terms, it included: current in-house capabilities and resources, the extension of data integration as well as the technology used for advertising. The second was the willingness to develop in this market area, meaning how much resources or how strategically is to invest in

mobile advertisement for those operators. Even though, a company would not have the required capabilities in place, the willingness to invest on them marks a great importance from Nokia's point of view. The third subcategory is their vision for the future. For instance, what would be operators' ideal state within the field of mobile advertising in two, five or ten years? What kind of solutions would fit into their markets and serve their customers in the best possible way? If these operators could be served with a new technology, which type of product or service they would like to be provided?

In a nutshell and based on the findings on the first research question, it was possible to draw an overview of the demand on the different market areas. This led to a conclusion of what kind of products and services are needed and which sales approach would be the most desirable. Therefore, the second research question was proposed as follows:

Q2: What kind of service offering and sales approach would best serve the potential customers?

Answering this question required an explicit definition of the roles of different actors in the ecosystem. For instance, are operators seen as enablers or providers of the mobile advertising service e.g. in terms of the content? This determines both the level of management and responsibility operators or Nokia and Flash Networks have over the product and its content creation. This is absolutely linked to a sub-question of "what kind of product operators would be interested in?" and "Is Layer 8 answering to their needs or should the product itself be modified to serve the market in a better way?" In addition, the answer might provide useful insights on the desired pricing strategy. Finally, to be able to determine the specific features of offered product, one of the most relevant questions is how to maximize the user experience in different markets, or even if the user experience is a relevant feature in that

particular market. For example, do the customers have to be rewarded for accepting additional advertisement on their mobile device and what kind of legal restrictions there are in different countries considering data usage or advertising in general.

2.2.2 Analysis

As previously stated, in order to understand the challenges that Nokia encounters globally when it comes to mobile advertising (MA), several interviews with mobile advertising professionals working for leading operators in four different markets - China, Brazil, USA and Russia were conducted. In this section all the major findings on each market will be described, starting with China.

China: high possibilities, but high limitation

In China, the digital advertising market is controlled by BAT, a joint name of 3 monopoly private internet companies in China: Baidu (SE), Alibaba (B2B, B2C, C2C) and Tencent (SN, Communication software, Video), which together take more than 71% of the mobile internet ad revenue share in the market (eMarketer, 2015). Entering the China market, therefore, would be naturally difficult. On top of that, however, a new entrant should also take into account the strong power of the Chinese government (Green, 2015).

The telecommunication industry in China is dominated by three major SOEs: China Mobile, China Unicom and China Telecom. All companies are vertically controlled by the Ministry of Information Industry (MII), National Development and Reform Commissions (NDRC) and Minister of Finance. In the government level, the MII is responsible, among other duties, for elaborating all sorts of regulations, allocating resources for each company, granting (or

not) licenses, supervising the competition, promoting research and development as well as for developing tariff rates (Sharkey, 2004).

Recently, China Unicom and Telefónica of Spain announced a new strategic alliance and the establishment of a joint venture. The whole project is leveraging on China Unicom's stable and extensive telecommunication network and rich market experience, as well as Telefónica's mature technology in big data services. By doing that, China is doing its first steps towards mobile advertising - although the future still to be unfolded. China Unicom has an enormous customer resource of 257.8 million users around China, which could generate considerable and profitable opportunity for advertisers. However, the Chinese government still did not granted China Unicom the possibility to tap into this market.

In conclusion, because of its size and potential, the Chinese market would be very profitable if successfully tamed. However, because of the strong government blockage and the BAT (Baidu, Alibaba and Taobao) monopoly, entering is not, at least for now, advisable for Nokia, especially lacking the country specific know-how and the amount of resources necessary to implement a successful entry strategy.

[Brazil: mobile advertising industry is building up](#)

Brazil is currently the largest economy and market area in Latin America. The country is currently the ones that spends the most in both digital and non-digital advertisement. eMarketer (2015) estimates that digital ad spending is set to increase 16% to reach \$3.40 billion in 2016, representing circa of 16.6% of overall media ad spending in the country.

Brazil is a very competitive market for operators and the four major carriers, Vivo, TIM, Oi and Claro have very similar market share in terms subscriptions (and also active users). Vivo

is the largest Brazilian operator, legally known as Telefônica Brasil. Vivo's coverage embraces 95% of the Brazilian territory, with more than 3.700 cities, including all state capitals. Additionally, the carrier is also the operator with the biggest number of active subscribers. Taking advantage of the large pool of active accounts, Vivo recently launched “VIVO ADS”, as an attempt to serve advertisers looking to new inventories and data-driven campaigns. Additionally, Vivo is highly investing in mobile advertisement and has recently build an entire team from the scratch, hiring experts from the market and putting mobile advertisement as an strategic segment on the company's portfolio.

VIVO ADS has not yet launched officially its services, therefore no financial data is yet available. The official launch of the new services is expected to be in the end of May, 2016. The new services will replace the old offer based solely on MMS, SMS and push messaging. Although MMS and SMS will continue to exist, the focus now is on new formats that can better address final users needs more efficiently and less intrusively while serving marketing demands from the advertisers side.

Vivo is currently leading the market and is the first operator to enter the mobile advertisement business in Brazil. A contra-intuitive fact is that the company has no desire to continue to operate alone in this market and it is currently working towards collaboration with is competitors. Vivo is encouraging Claro, TIM and OI to follow Vivo's lead. The carrier is using the argument that by the advertisers' perspective, it is better, safer and more efficient in terms of communication to have an entire industry offering mobile advertising solutions, instead of just one player. Another fact is that entering this market alone can give to the competitors a leverage against Vivo. For instance, using a “free-advertisement carrier” marketing campaigns or shaping users mind against Vivo's new services.

Russian: the old school big three

In Russia, leading operators created a collaborative ecosystem to tackle mobile advertising. However, they still lack the perfect inventory to capture right mobile advertising opportunities. Russian mobile market is growing faster. Current market consists of 116 million smartphones, with mobile device user penetration of 85% in the population of 143 million people. Traffic data from smartphone accounts for 77% of all mobile data traffic with majority (54% of all mobile data traffic) being used to watch videos (eMarketer RUS 1, 2) &3), 2016).

Russian mobile market is dominated by the so called “Big Three” – MTS, MegaFon and Beeline operators. However, mobile advertisement is currently managed by their own daughter companies – Stream, MegaLabs and the Beeline daughter company respectively (Mobile Review, 2008). Other smaller operators, like Tele2, are still not representative enough to join the ecosystem or do not participate for other reasons.

Although the “Big Three” have daughter companies to manage mobile advertising, Russian operators are still old school when it comes to providing inventories to advertisers. SMS and MMS continue to be the most popular tool. However, due to the vast amount of data about the users that operators have gathered (and in addition to this, users are quite responsive to advertisement in general) the ads are often very relevant. According to the interview conducted with MTS, 70% of users find them useful. Finally, the favorite type of advertising for the end user is the “deal”-ad, on which users can take advantage of promotions and offers tailored for their needs.

In Russia, risks in the mobile advertisement market are connected with overall politics and economic situation in the country. Mobile inventories are the last type of advertising to be considered by the advertisers, making them also the easiest to be cut out of advertising budget. In addition, the agile nature of mobile advertising and ability of the advertiser to stop the campaign in any moment is a big weakness of SMS and MMS advertising. In summary, although SMS seems to be getting out of fashion (especially because it does not provide enough space for creativity and innovative ways to communicate information and promotions) new formats and types of inventories did not yet successfully penetrated the Russian market.

United States of America: competitive and mature market

USA has been always the forerunner in mobile advertising. In 2014 the US mobile ad spending represented 47.2% of the worldwide chunk. The total mobile advertising market in the US was worth \$32 billion in 2015 and it is expected to grow in the following years, at a double digit, although declining rate. The expected market size in 2018 is \$61 billion. In addition to that, the share of total media marketing in the US (17.3 %, in 2015) is higher than the worldwide share (13.7%) (AdLabs, 2016).

However, it must be noted that mobile marketing is growing as in a faster rate in many other countries than in the US, represented by the higher growth percentage worldwide (see figure 2-1 below). In conclusion, this can be understood as a clear sight that the US mobile advertising market is much more mature than in other countries (eMarketer US, 2015).

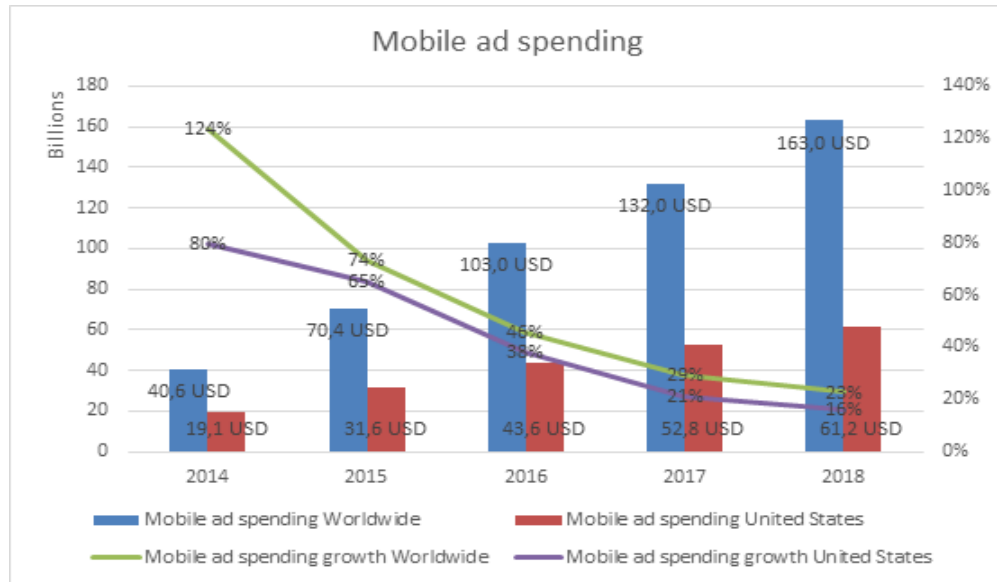


Figure 2-1. Mobile advertising worldwide and in the US (eMarketer US, 2015)

Based on these findings, recommendations were provided in order to shed a light on Nokia's future strategy regarding mobile advertising. Countries with more potential, such as Russia and Brazil were prioritized because it is clear that Nokia could offer a better solution for these countries operators. On the contrary, China and US were analyzed, but entering the market was not advisable.

2.3 Recommendations to the company

Based on the findings discussed in the last section, country specific recommendations and overall sales strategies that can help Nokia to succeed in the mobile advertising market were provided. An important note is that the overall sales strategy was based on the idea of mobile advertising being a *"low-hanging fruit"*, in other words, a convenient, profitable and easy-to-enter market. Sales people were trained to not only perceive mobile advertising as being a *"low-hanging fruit"*, but also to approach operators with this sales strategy. During this research, however, the data gathered has shown that this market is far to be a *"low-hanging*

fruit”, and that successfully entering relevant markets is actually very difficult and requires not only resources, but also deep understanding of each market ecosystem.

The following recommendations, therefore, focus on three different dimensions. First, internally repositioning of the solution. Secondly, a check list was developed to help Nokia to access and organize information before entering a specific market. Thirdly, defining ecosystem roles on every country on which the company intends or current operates, ensuring information flow and mapping the relevance of every player in the market:

1. *Strategically repositioning Nokia's mobile advertising Solution* - Internally reposition the mobile advertising from the “*low-hanging fruit*” to the “*truffle hunt*”. The current positioning of MA, as something marginal both among Nokia teams and when communicating to operators, does not deliver the needed focus and sense of a new business challenge. This is why Nokia needs to fully understand the market and the stakeholders in the ecosystem in order to understand where the valuable “truffle” is hidden. In addition, Nokia needs to convince the operators that the solution is worth investing in and that Nokia is that trustful partner to carefully “retrieve the truffle from under the ground”. Additionally, by changing the perception of the solution from “low-hanging fruit” to “truffle hunt”, Nokia can ensure that two major points will be covered on its sales strategy:

- a. *Before selling, finding information & researching the market is crucial* – To unearth a truffle, truffle hunters work together with their dogs that, after being trained, are able to find truffles by detecting the smell through their keen noses. In the same way, before entering a market, Nokia should be able to answer carefully all criterias described in the Appendix 2. Finding contacts, partners and information about the

market will make the hunt easier and more precise, increasing the chances of deals and providing more information for the salesperson to convince future clients.

- b. *Convincing operators is not just a matter of persuasion, it is crucial to provide enough information to make them safe and confident about the market* - When sniffing a truffle in the woods, dogs will alert the hunter who will very gently unearth it by means of a specific hand rake. In the same way, approaching operators needs to be done in a very careful way. In many markets MA is still doing its first steps and many operators are uneasy and suspicious about betting their resources on it. That is why, alerting and convincing operators is more than just selling the product itself, it is, precisely, offering a handhold and a safety net – positioning Nokia as both technology & information provider in the MA ecosystem.

2. *Evaluating potential markets with a check list* - When considering entering a new market, it is recommended to fully answer a list of questions in order to evaluate the business opportunity of that specific country. The check list focus on the two main themes: (1) *the maturity of the mobile advertising ecosystem* and (2) *the willingness and capabilities of the operators to tap into this opportunity*. The full list can be read in the **Appendix 2**.

Additionally, this checklist was also implemented in the researched markets and its result can be found in the **Appendix 3**. In summary, country specific recommendations regarding Nokia's next approach/action in each researched country are the following:

- USA: Do not to enter this competitive and mature market unless in order to gain valuable insights and expertise.
- China: Wait for the right timing to enter this market. China is slowly moving towards mobile advertising and when the time comes, Nokia should be ready to act. In the

meantime, Nokia should look for partnerships and country specific expertise to be able to tackle the Chinese market complexity.

- Brazil: Actively partner with market shaping operators (for instance, Vivo) and offer Layer8 as a solution for every player in the market. Vivo is currently investing in mobile advertising solutions and is very likely that other operators will be interested in take advantage of this opportunity in a very near future.
- Russia: Partner with Big Three and offer customized version of Layer8. Since user experience appears to be a big trend in the Russian market, sales strategy and the solution customization should focus on this particular detail.

3. *Defining ecosystem roles and ensuring information flow* – Nokia should definitely reevaluate the efficiency of information flow between itself and other parties (such as sales people and Flash Networks). When entering a new area, a great amount of knowledge sharing, capabilities and know-how is developed in order to create the tailored solutions for each specific client. Nowadays, complex innovative technological solutions are always co-created between parties. Therefore, it is crucial to note that quality of the network is as important as the product or the service itself. In other words, coordination of communication is an essential factor in the network. In conclusion, Nokia is recommended to pay special attention to its in house coordination team. This team will be coordinating communication e.g. between local account managers and technology providers, such as Flash Networks.

In conclusion, mobile advertisement is an industry that evolves fast, being crucial for Nokia to stay tuned to the changes, fluctuations and trends. In the next section, some concerns will be briefly discussed in order to highlight some of the difficulties and challenges that the company can face in the future.

2.4 Concerns & challenges ahead

The major concern about the previous recommendations is connected with information and communication flow. After conducting interviews with Nokia's sales team, Flash Network employees and managers at the headquarters based Helsinki, it was not difficult to perceive that the company still very fragmented when it comes to knowledge sharing. Additionally, different markets have no bridge to exchange information to each other and sales people are not interested in sharing best practices or tips with their peers – mostly because the company itself does not encourage them to do it.

A second issue is the fact that sales people do not prioritize this product, as they tend to find other services and solutions easier to sell and more rewarding moneywise. Unfortunately, the specifics of possible incentives that could be created to mitigate this behavior were not on the scope of this research. Therefore, the doubt regarding how Nokia could tackle the lack of motivation to sell Layer 8 in specific markets will continue to exist, being an important and relevant concern to be taken into account in the future.

2.5 Individual contribution

My individual contribution on this Business Project was divided in 5 major tasks: (1) on-going search for relevant academic and secondary data information to provide grounds for this research; (2) Finding contact, approaching, interviewing, analyzing and providing tailored recommendations for the Brazilian market; (3) Conceptualization and development of the Action Plan; (4) Developing digital material for all client and academic presentations; (4) Revising, editing and finalizing the final report; (5) Co-writing the Executive Summary.

As a note, since all my teammates will not be in Finland in the future and we still have extra deliverables for the client, I will be in charge of (a) Writing a post about mobile advertisement on Nokia's official blog; (b) Providing additional digital presentation that will be distributed to sales people worldwide. The additional deliverables will be co-created with Nokia, therefore I will be the one responsible to face the client.

3. Academic discussion

In this section, a literature review connected to the most relevant management insights regarding business ecosystems and value co-creation will be discussed. These topics are crucial for Nokia because this research found that (1) the company does not fully acknowledge its role and other players' role on the mobile advertisement ecosystem (2) understanding the importance of business ecosystems can generate a great positive impact not only for Nokia, but for every company that desires to work in competitive and innovative industries.

3.1 Business ecosystems & value co-creation: relevant insights to innovative businesses

Business ecosystems are mainly a product of the increasing access to connectivity and the overall digitalization of the information. These technologies are increasing and fostering new ways of collaboration, reshaping internal structures and encouraging companies to partner up - not only internally but also externally. Understanding and being a relevant actor of an ecosystem can not only bring new opportunities to a company, but it also can generate a great competitive advantage (Möller, 2005).

That said, bringing disruptive technologies to new markets is always a challenge. Nokia has already sufficient know-how when it comes to dealing with uncertainty and facing adversities in general. However, the company grew very fragmented and, because of that, many times country-specific details are not understood in the way they should be. Therefore, in the next section, a deep dive in the concept of "*business ecosystems*" will be provided, followed by a reasoning why companies should care about it and how they could take the most out of the newest academic researches about this specific topic.

3.2 Business ecosystems & value co-creation: relevant theories

Ecosystems are a very familiar concept in the natural world. It refers to a community of living things that are in constant interaction with each other. The influence is mutual and, although they compete, they also collaborate - sharing resources and constantly evolving together. One of the greatest concepts that are deeply linked to ecosystems in the natural environment is adaptation - which is also a crucial concept for companies working with innovative solutions targeting uncharted markets (Kelly, 2015).

Already in the 90's, James Moore (1993) brought important insights about cooperation and developing ecosystems. The author states that companies should attract all types of resources, not only on the capital and supplier side, but also cooperative dynamics on which the company can generate new businesses. "In a business ecosystem, companies co-evolve capabilities around a new innovation: they work cooperatively and competitively to support new products, satisfy customer needs, and eventually incorporate the next round of innovations" (Moore, 1993).

Moore's ideas on "*A new ecology of competition*" were developed more than 10 years before the creation of the first smartphones and mobile and digital spread. The author focus mainly in the community level, meaning how companies can find in the environment on which they are embedded alternatives to grow and adapt overtime. More recently, Valkokari (2014), provided a new understanding of network dynamics, taking as an example the manufacturing industry. "A business net is a long-term, cooperative, delimited entity with identifiable joint goals whereby more than two partners share critical knowledge, resources and/or financial assets in order to attain, sustain or improve the net members' future competitive positions (Valkokari, 2014). These business nets are, precisely, another way of describing ecosystems - or a dynamic on which joint operations try to achieve common goals.

In "*Describing network dynamics in three different business nets*" Valkokari (2014) provides a new perspective when it comes to achieving successful partnerships and aiming for cooperation within an ecosystem. A business net needs to have a clear strategic intent and a shared identity to be able to succeed. On Nokia's case, for instance, a clear strategic intent that matches operators' expectations is needed, because just by having similar goals both players can achieve mutual understanding and be satisfied about being working together. Additionally, shared identity is key – if the operator does not perceive Nokia as being a relevant partner, or even if the operator does not see itself pursuing mobile advertisement businesses in a long-run, both players cannot co-create together and they cannot build a share identity.

Jaakkola & Hakanen (2013) in "*Value co-creation in solution networks*" highlight the importance of co-creation in solution networks. "According to the (ARA) model, companies can be linked in three interconnected layers: via activity links, resource ties and actor bonds,

which affect and are affected by the constellation of resources, patterns of activities and web of actors in the wider network” (Jaakkola & Hakanen, 2013). In other words, value co-creation is an iterative, collaborative process that occurs at three interrelated levels:

1. The individual actors execute activities to contribute and receive resources whereby they perceive benefits and sacrifices. On Nokia's case, a good example would be tailoring Layer 8 specifically for the client, creating a tool that could serve not only their needs, but that could be created on its core for both actors.
2. Value co-creation occurs at the relationship level through interaction and collaboration between actors. On Nokia's case, a good example would be the new relationship that Nokia could build in the market by using operators capabilities and exchanging with its own connections worldwide. Not only Nokia, but many operators work in several markets at the same time, therefore, fostering new relationships are not only possible, but advisable.
3. At the network level, resources are integrated into a larger resource constellation through a pattern of activities by a web of actors. In other words, Nokia and operators could exchange contacts and best practices beyond the mobile advertising market - extrapolating the ecosystem and generating new businesses opportunities.

Finally, “*From value chain to value network: Insights for Mobile operators*” (2006), from Peppard & Rylander, shed some light on how value network and ecosystems are directly connected with the mobile operators industry. Although the article was written more than 10 years ago, it proposes very up-to-date insights. In summary, it explains that as the mobile telecom market started to mature and carriers started facing the difficulties connected to keep

clients in their networks, they also started to realizing the importance of managing the ecosystems on which they were embedded.

3.3 Implications for theory and future research

Future research about business ecosystems and value co-creation should focus intensively on mapping successful cases and presenting both quantitative and qualitative data in a more detailed way. Academia seems to agree that ecosystems accelerate learning and innovation, but models and approaches towards ecosystem management are often too broad or not clear and simple enough to be used in a daily operations basis. On top of that, quantitative data is very seldom, very likely because companies continue to be skeptic when it comes to public sharing their data and expertise. Finally, it shows, precisely, how companies are still not cooperation-oriented – and that future research should aim, also, to encourage value co-creation itself.

4. Personal Reflection

To conclude, working as student consultant for Nokia during this Business Project was a very rewarding experience. First, it was an opportunity to improve skills that can be very important in the future and it also gave me the opportunity to point out my weaknesses and areas on which I would like to improve.

My key strength during the project was connected to project management. I'm very result-oriented and I really do not appreciate redoing work by inefficiency. Therefore, in this particular project I took the lead when it came to preparing material to group and client meetings, organizing our ideas and assigning tasks. In addition to this, and because I was highly involved with the project from the beginning to the very end, I was able to improve

my leadership skills - especially because my group seemed to be willing to give me room and trusted me fully to do it.

When it comes to weaknesses, I believe that at some points I could have being a slightly more open about my expectations with other people's work. Fortunately, my group did a great job overall and this situation did not escalate. In any case, I wish that in the future I could be less passive when it comes to settling some boundaries or rearranging deadlines against my will.

I do believe that some of the most relevant traits of my personality that emerged strongly during this research were my creativity and the fact that I am absolutely result-driven. During the project, we tried to use innovative ideas to present our findings and recommendations to the client. I was always involved with the process of brainstorming and up to take the risk to present our ideas.

Lastly, an area that I definitely would like to improve is my punctuality. During the entire semester, I struggled with this issue and, in the last session (on which we proactive gave face-to-face feedback to each other) that was the only point raised by my teammates. Finally, if I could start this project again, I would have maintain the same research structure and recommendations, but I would try to be more considerate about my teammates time.

Conclusion

The continuous growth of smartphone technology and the ongoing interest of advertisers for new inventories signalizes a great potential for mobile advertising. Orchestrating its position in this ecosystem is a great challenge for companies such as Nokia, that currently do not have the expertise and previous know-how of the advertisement market. This research was part of an effort to provide insights on how to mitigate the effects of not yet having these capabilities,

by providing up-to-date recommendations and fully analyzing MA in the most relevant markets worldwide.

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Appendix

Appendix 1. Operator interview structure

Research questions:

- 1) What is the maturity, willingness and vision of the operators regarding mobile advertising now & for the future?
- 2) What is the role of the operators (enabler or provider) and what Nokia's mobile advertisement key selling points?
 - Technology/standards already in use
 - Inhouse capabilities and resources (marketing, Sales, coordination, relationships)
 - Data integration and how operators expect it will develop
 - What is the preferred mobile advertisement solution/inventory

Interview key questions:

- How far the company is in mobile advertising?
- What resources does company use for mobile advertising?
- What is the preferred role/solution for the operator?
- What are the challenges/risks of mobile advertising for you?
- (How data integrated? What is revenue model?)

Interview structure to be followed:

Warm up question

What is the Can you briefly tell about yourself and your role?

Maturity

What is the company's current participation in mobile advertisement?

What kind of activities does the company currently have for customer engagement?

How much and what kind of resources does the company dedicate to mobile advertisement currently?

- Technologies/standards in use
- Coordination/sales/marketing of advertising content
- Relationships/partnerships to players in the field

How does your existing customer data help you to create relevant mobile advertising?

- Location information usage
- Profiling (behavior and preferences) possibilities
- Is there a possibility to share data to any partners?

How do you see the legal environment in your country of operations regarding this?

Is mobile advertising a valuable source of revenue for your company?

Can you give any idea about the revenue model?

Willingness

How do you believe your company will use mobile advertisement in future?

How does the company see mobile advertisement as a future source of revenues?

Vision

What is your/the company's vision about mobile advertisement in 3-5 years?

What channels are you expecting to use too?

- Browser
- Push-up notifications
- SMS
- New inventories (other spaces)?

What kind of services/partners do you see necessary for your company to be able to participate the market?

What kinds of potential risks and challenges have you noticed in mobile advertisement market?

What kind of services would you like to have? All-inclusive or technology provider?

Appendix 2. Market overview checklist

(1) Maturity of the markets

- Brief market overview and market maturity: what is the real state-of-art of the selected market?
- Operations in-house capabilities: how ready and resourceful are the operators in this market?
- Mobile advertising inventory: what are all the mobile advertising inventories available?
- Preferred consumer subsidies: does the end user is willing to receive MA? Does it need any reward?
- Data integration: how willing are the operations when it comes to sharing users data with advertisers?
- Legal/privacy situation: how is the market regulation when it comes to MA?

(2) Operator's vision of the future in mobile advertising

- Strategic importance of MA for the selected operator: is it MA being treated as a priority?
- Commitment of the operator: how much resources is the operator willing to allocate to run a MA business?
- Risk & Challenges: what are the main challenges and risks from the operator's perspective?
- Preferred inventory: how is the ideal product to offer to this particular operator?
- Additional points: for example - peculiarities of the market; role of other players in the ecosystem; history of MA - do's and don'ts in the market;

Appendix 3. Check list outcome: researched markets

Table 1: Maturity of the Markets

Country & interviewed operator	Market overview & maturity	Operator's in house capabilities	Mobile advertising inventory used	Preferred consumer subsidies	Data integration	Legal/privacy situation
CHINA Unicom	Government controlled SOEs: China Mobile, Unicom, Telecom. The largest number of mobile users, huge potential but high limitation.	3 related departments in province level company; 1 national subsidiary	3 preferred mobile ads tools: search, in-app, video	Data free in some cooperative websites	Low willingness to share, limited by supervision, but possible	Supervised by MII, they are not allowed to share user information without permission according to regulation
USA Verizon	Quite a developed market with 3 big players having strategic acquisitions: Verizon, Sprint, AT&T.	Team of about 60 people, acquisitions: AOL, Millennial (mobile advertising)	Unique identifiers used cross-carrier, standards, data-driven marketing	Content, especially video	Carriers play by more restricting rules than Google and FB	Regulation: FTC, FCC + Self-regulation: MMA, CTIA Attitudes: vocal minority, broad acceptance
RUSSIA MTS	Competitive new MA market with "Big Three": MTS, Megafon and Beeline, as main shapers.	Daughter companies of the "Big Three". Small inhouse teams for smaller operators	SMS, MMS, banners and videos in the operator's-specific web pages	Offers, useful information and advertising	Ranging from very targeted for SMS to minimal (geo, mobile phone model) in the WAP	Legally using data and integrating ads to web pages is in "grey area", sms and mms have full legal proof, limited only by operators own will.
BRAZIL Telefonica	Very competitive market. Major players: Vivo, TIM, Oi and Claro. Vivo leading the mobile advertisement industry, other players lagging behind.	In-house team ready to start selling its products from May onwards.	No inventory yet	Free data (data sponsor and data reward)	Vivo is currently using all data given by the client when buying its number. No geolocation permitted.	Blurry law regarding data usage.

Table 2: Operator's vision of the future in mobile advertising

Country & interviewed operator	Level of willingness/ Strategic importance of mobile advertising for the operator	Commitment (e.g. creating of MA teams)	Risks/Challenges	Preferred inventory	Additional important points
CHINA Unicom	Strategic alliance in big data services area between China Unicom and Telefónica of Spain, valuable resource of revenue	Very beginning step in mobile ads.	The legal issue of privacy, inadequate supervision of big data usage, and deceptive advertising	3 preferred mobile ads tools: search, in-app, video	China Unicom cannot solely run well in all the aspects of mobile advertising, and partners with strong technologic support and international experience are needed to promote the performance in the market
USA Verizon	Strategic acquisitions, possibility to compete in the future with the likes of Google and FB	Increased commitment from C-level executives proven by multi-billion \$ acquisition	Customer experience is the key, Ad-blocking should be overcome, as content must be subsidized somehow	Video mainly, also to follow up on other technologies that Aol have, such as rich media and banner-ad. Possibilities in home screen and lock screen	Verizon a leader in the space from a carrier perspective, company careful in moves in regards consumers, transparency, choice and control
RUSSIA MTS &Tele 2	All operators are willing but cautious, "Big Three" has been active, but could not fully solve the case 3 years ago. Operators trial new solutions. Operators are willing to cooperate between each other.	Acquisitions/creation of companies with mobile advertising as specific area (e.g. Stream) in addition to e.g. mobile tv. However MA remains marginal income.	Customers are sensitive to switch operator. Legislation for mobile web advertising is still fuzzy. Russian economy and legislation is turbulent.	Operators outsource MA to daughter companies or third parties, but are still involved. Interested in solution inventory that is risk-free.	User experience and advertising as service is can be a new solution to operators.
BRAZIL Telefonica	Recently assembled team. Mobile advertisement as an important and strategic move for Vivo.	Highly committed to put the services in the market and to motivate other operators to join the industry	First mover issues. Clients can be sensitive about privacy and other operators can take advantage of it to block Vivo's attempts to succeed in this market.	Video, rich media and banner-ad	Vivo is currently trying to convince other operators to enter this market altogether